

The Otji-Toilet self builder manual



The Clay House Project
Otjiwarongo



The Otji-Toilet self builder set

Your self builder set consists of following material

- 1 Lid box with following parts
 - a) frame
 - b) lid with bolts
- 1 ventilation pipe
- 1 door
- 1 door frame with following parts
 - a) 1 angle iron 40 x 40 x 3 mm with hinges
 - b) 1 angle iron 25 x 25 x 3 mm without hinges
- 1 welded steel roof structure
- 1 foundation steel ring (4 round steel— 2 long, 2 short parts)
- 2 perforated 90 l plastic container
- 1 Toilet Pot
- 2 concrete side plates
- 2 concrete dry plates (700x700)
- 1 concrete floor plate (850x750)
- 15 roof tiles (cool tiles)
- 1 silikon, wire, 2 long 2 short screws
- 4 nuts, 2 angle iron pieces



metal parts, pot, container



dry plate



side plate



silikon, wire, screws, angel iron, nuts



roof tiles



floor plate

Congratulation — you decided to build your Otji-Toilet by yourself. A good solution as well for you and for the environment, because the Otji-Toilet is an environment friendly ecosan toilet. This brochure will help to finish the building job successfully.

The CHP-Team wishes you many success and always fresh air in your self built Otji-Toilet.

How to build your Otji-Toilet

For a builder it is not difficult to build an Otji-Toilet. All you need is the construction plan, the Otji-Toilet self builder set you bought at the Clay House Project and following additional materials:

- 480 super bricks
- 3 bags cement
- 0,6 m³ sieved sand
- 5 litre paint of your choice

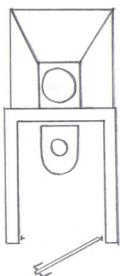
and the usual building tools like digging spate, tape measure, brick trowel, plastering trowel, hammer, wheel barrow, screw driver, fencing plier, straight edge, block brush and last but not least a spirit level.

If no super bricks are available, you can use any other cement bricks, but make sure that all measurements are being kept.

And you have to know how to face the lid box of your toilet exactly to the North.

Without facing the lid box to the north your Otji-Toilet will not work properly. For a well functioning Otji-Toilet it is essential to find the right direction. Furthermore the place for the lid box must be shadowless to get the whole day full sun. Only under these conditions you will have an odourless functioning Otji-Toilet.

Before you start to dig the hole for the toilet, please make sure that all the toilet parts you have received are complete and the additional material is available as well.



The following pages show each single step which is necessary to build a proper functioning and long lasting Otji-Toilet. Please don't change the construction because every single step has its own importance and is approved through our long experience.

lid box strictly north

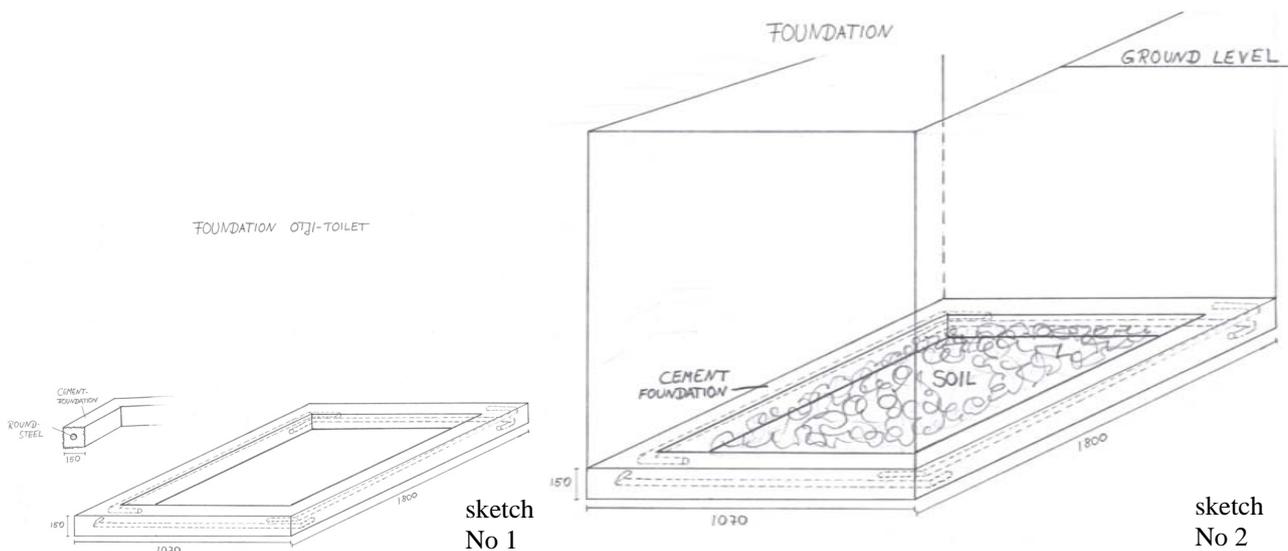


1. In the beginning is a hole

The hole what you dig is 1.100 mm deep, 1.070 mm wide and 1.800 mm long. If your underground is too rocky, the depth of the hole can be reduced. In that case the toilet floor should be raised just as much above ground level in order to get enough depth.



2. Laying the foundation



The concrete foundation will be reinforced with the round steel you received together with the Otji-Toilet self builder set. This reinforced foundation has to carry the whole weight of the toilet house and will prevent the walls from cracks. It is important to level the foundation exactly to get a straight toilet house.

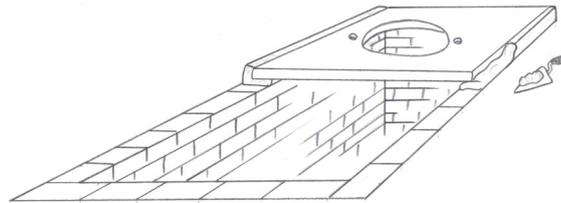
As a preparation for the concrete foundation dig a square channel of 150 mm depth and 150 mm wide on the ground of the hole.

3. Building the tank



The walls of the underground tank can be build out of super bricks or any other bricks which are available. Just make sure that you keep the inside measurements shown in the construction plan. The walls must reach one brick over ground level.

4. Setting the floor-plate



sketch
No 3

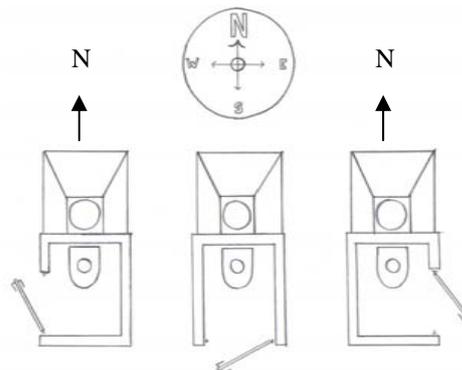
After building the tank, the floor-plate must be set in cement. Put mortar underneath and add mortar to the side of the plate.

5. Building the toilet house

The building of the toilet house starts at the back side of the floor plate and goes than in direction to the front of the house. The wall of the toilet house is being built on the floor plate, but exceeds to the front plate (south). This side wall has outside a length of 1.200 mm and is extended over the floor plate. Therefore a small foundation should be laid in front. Normally the toilet door opens to the south, but you can change the design if needed.



add foundation

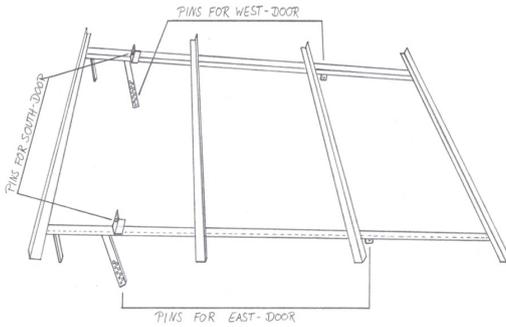


sketch
No 4

6. Installing the roof structure

As soon as the toilet house is finished, the roof structure is laid on the walls and fixed with mortar. The roof structure provides pins for doors in any direction. The following sketch shows what pin has to be used for what direction of door (to the south, to the east, to the west).

Once the tiles are fixed with wire at the roof structure the gap between roof and wall can be filled with mortar. By that way the roof gets its stability as well.



sketch
No 5



7. Fixing the cool tiles

The cool tiles are being laid starting from the north lid box side—left hand. Each tile has a pin which you hang at the angle iron. The wire fixed to each concrete pin must be tied to the angle iron.



8. Installing the door frame

The door frame consists of two angle iron which must be connected to the pins of the roof structure. See on sketch 3 which pins should be used depending on the direction the door faces.

Each frame has to be concreted into the bottom.



south door
floor

south door
roof



9. Add cement slap

As the floor plate does not cover the whole inside space, add a 100 mm cement slap.



addede cement slap

10. Building the lid box

When the toilet house is completely finished the lid box is being installed. At first hold the steel frame without the lid at the backside of the toilet house. Put the side plates straight on the tank wall and lean them to the box (you need two people). The box has on each side two pins which prevent the side plates to fall down into the tank, an other two pins are at the upper side of the box. Mark where the upper pins touch the wall, remove the lid box and the side plates and knock a small slit into the wall, where the upper pins of the lid box can enter. Now bring the box with the pins into the slit and lean at the same time the side plates to the box. Fix the side plates with cement mortar. After that you have to fill the gap between lid box and the tank with bricks and mortar.



11. Installing the ventilation pipe

Put the ventilation pipe over the hole on the top of the lid box. Fix it with wire at the roof structure and use the silicon to seal it on the lid box to make it air- and waterproof. Seal as well small gaps between lid box and side plates to prevent any air circulation at the box. Big gaps you have closed with mortar.

12. Fixing the door

Hang the door into the hinges. Through the special formed hinges the door closes automatically.

13. Fixing the toilet pot

The toilet pot has to be fixed on the floor plate with two screws and the nuts belonging to it. Do it with two people, one on the top and one inside the tank. You have received two short pieces of a iron which can be used as washer..

14. Putting the drying plates into the tank

Before you put the drying panels into the tank, the bottom of the tank has to be cleaned from mortar which has fallen down during the building process. This is important to ensure good infiltration once functioning. Now put some bricks as sockets for the drying plates at the ground of the tank.

Place the plates on the bricks and as last step put the plastic containers onto the drying plates (don't throw the containers down on the plates because the plates could brake).

15. Sit down and enjoy

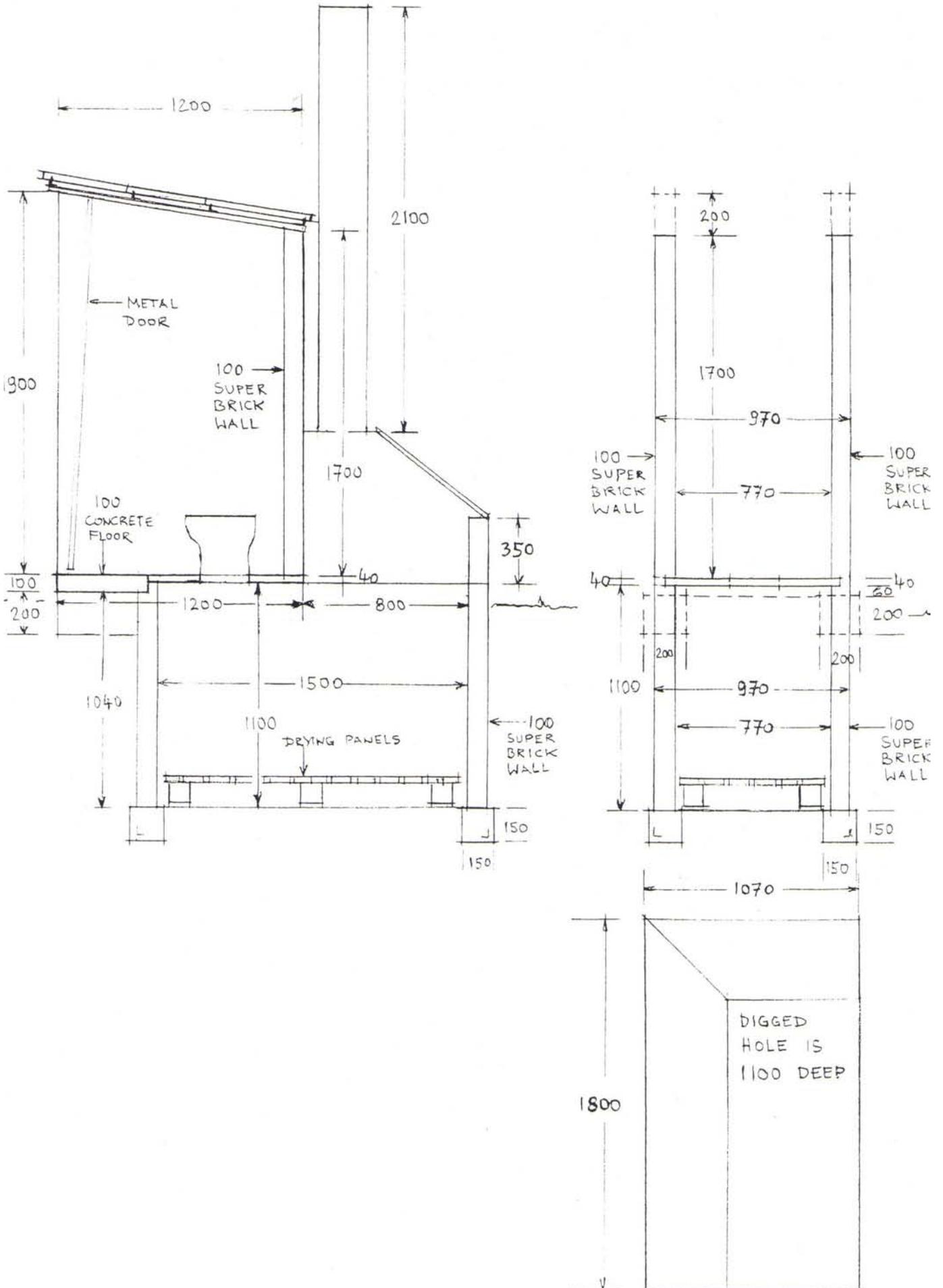


16. How to maintain the Otji-Toilet

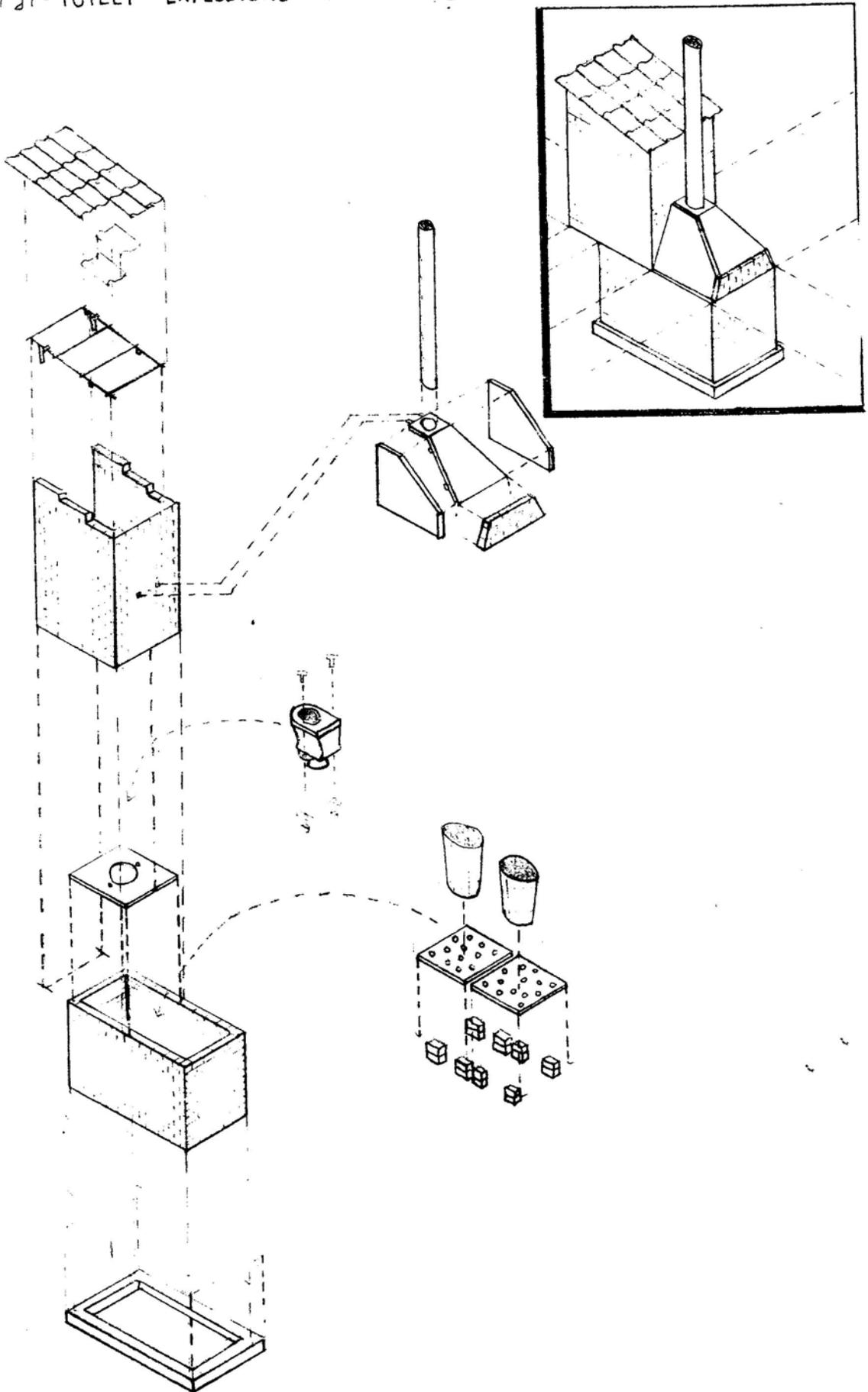
Usually the Otji-Toilet needs maintenance only twice a year. If you have more then 10 people using the toilet, please check every 4 month whether the container for the droppings is full or not. Move the full container with a steel hook to the back side of the tank, where the droppings can dry for half a year. Replace the full container with the empty container. Once the second container is full you have to remove the first container with the dried droppings and to empty it, than you exchange the both containers again.

The toilet pot has to be cleaned occasionally with a brush and a little bit of water. That's all.

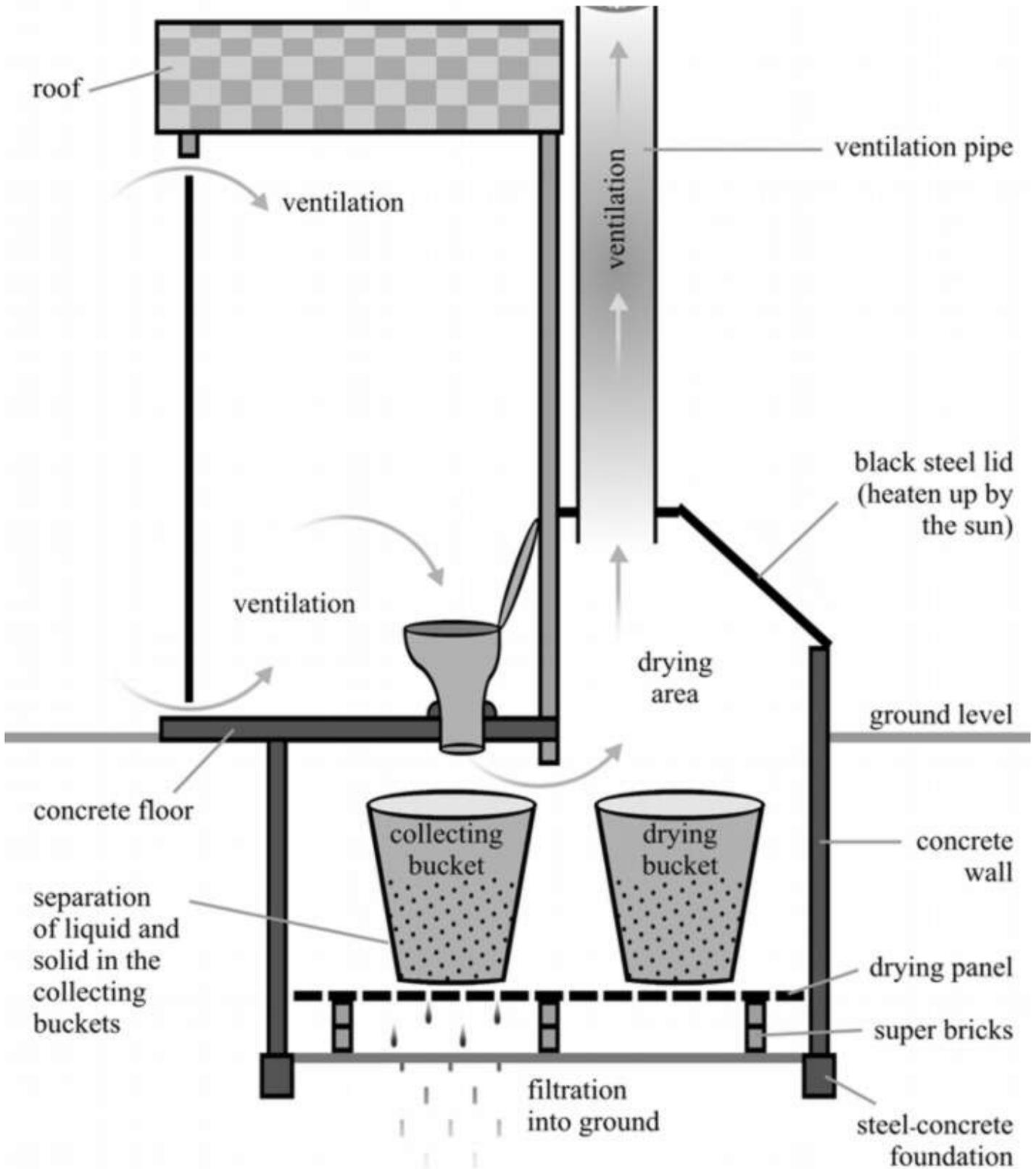
CONSTRUCTION PLAN M 1:25
 UPDATE: 19/09/05



OT21-TOILET EXPLOSIONS-PLAN 1:75



Otji-Toilet function plan



The CHP is a namibian non-profit organisation with a Trust board. The „NAMIBIAN CLAY HOUSE DEVELOPMENT PROJECT TRUST“ is registered since 1991, with Nr. T6/92



Clay House Project

**P.O.Box 1496
Otjiwarongo
Namibia**

**Phone **264-67-304548
Fax **264-67-304557
chp@africaonline.com.na
www.clay-house-project.org**

Manager

Peter Arndt

Co-Manager

Abraham Simon

Front Desk

Tertu Shilongo



This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of CHP and can in no way be taken to reflect the views of the European Union.